

ENGINEERING HANDBOOK 7

Section 3.4

COMMUNICATIONS EQUIPMENT MODIFICATION NOTE 80 (for Electronics Technicians)

Maintenance, Logistics, and Acquisition Division

W/OPS12: JJE

SUBJECT	: NOAA Weather Radio (NWR) Remote Off Air Monitoring System (ROAMS) Firmware Upgrade and Circuit Board Modification
PURPOSE	: To inspect and upgrade the ROAMS EPROM firmware from version 1.7 to version 2.3 and to inspect and modify the printed circuit board to allow remote resetting of the voice integrated circuit (IC).
SITES AFFECTED	: All SRS and Energy-Onix transmitters (see Attachment B for a complete list of sites)
ESTIMATED COMPLETION DATE	: 30 days after receipt of parts and modification note
EQUIPMENT AFFECTED	: NWR ROAMS units (B345) attached to the SRS (B220/B222/B224) and Energy-Onix (B230/B232) transmitters
SPARES AFFECTED	: Spares at Independent Technologies (INTEC) will be inspected and modified as necessary
ACCOMPLISHED BY	: NWS and/or contractor electronics technicians
PARTS REQUIRED	: - Version 2.3 EPROM - Approx. 12 inch length of No. 24 or 26 gauge Teflon wire
SOURCE OF MATERIALS	: After inspecting the EPROM for the version number and the circuit board for the revision letter (attachment A, steps 7 and 10), determine if either or both parts are needed, then contact NWS headquarters either by phone or email: Wayne Hart: Wayne.Hart@noaa.gov 301-713-1847 x192 Peter Georgiou: Peter.Georgiou@noaa.gov 301-713-1847 x189
	The parts required will be issued to each site by Independent Technology (INTEC) in Scottsville, NY
TOOLS AND TEST EQUIPMENT REQUIRED	: #1 and #2 Phillips screwdrivers, wire strippers, cutters, pliers Low wattage soldering iron (with fine tip) and solder IC extraction and insertion tool (for EPROMS) Small flat-blade jeweler's screwdriver Anti-static workstation kit Magnifying glass (optional)

TIME REQUIRED : 1.5 hours for EPROM installation and printed circuit board modification.

DOCUMENTS AFFECTED : None.

AUTHORIZATION : The authority for this modification is by National Weather Service Headquarters direction.

VERIFICATION STATEMENT : This procedure was tested and verified at Akron, Ohio (ARN01).

DISPOSITION OF REMOVED PARTS/MATERIALS : The removed version 1.7 (or older) EPROM MUST be returned to INTEC for re-programming. Insert the removed EPROM into a piece of anti-static foam and ship to:

Independent Technology, Inc (INTEC)
39 Main Street
P.O. Box 197
Scottsville, New York 14546

PROCEDURE : The ROAMS unit needs to first be inspected to see if the firmware and/or PC board modifications have been made. The attachments in this procedure contain instructions for inspecting and replacing the EPROM and inspecting and modifying the circuit board.

Attachment **A** provides procedures for implementing this modification.

**REPORTING
INSTRUCTIONS**

- : The regional headquarters NWR maintenance focal point will ensure this modification is reported to Weather Service Headquarters (WSH) using the Engineering Management Reporting System (EMRS) according to the instructions in NWS Instruction 30-2104, Maintenance Documentation, Part 4 and Appendix G. Include the following information on the EMRS report:
- a. An equipment code of **B345** in block 7.
 - b. The ROAMS unit serial number in block 8.
 - c. A Mod No. of **80** in block 17a.

A sample EMRS report is provided as attachment **C**.

Mark S. Paese
Director, Maintenance, Logistics, and Acquisition Division

Attachment A - Inspection and Modification Procedure
Attachment B - Effectivity
Attachment C - EMRS Report Sample

Attachment A

Inspection and Modification Procedure

NOTE: Read the entire procedure and verify receipt of all required parts before proceeding with the actual modification.

The following is the procedure to inspect and, if necessary, change out the EPROMs for the version 1.7 to version 2.3 firmware upgrade and to inspect and modify the printed circuit board (PCB):

1. Remove power from ROAMS by unplugging the power plug from the back of the ROAMS unit.
2. Unplug the I/O connector from the back of the ROAMS unit.
3. Remove ROAMS from the transmitter equipment by removing the four Phillips screws securing the ROAMS chassis to the equipment rack and setting it on the anti-static pad.
4. Connect the ground strap from the anti-static kit to the wrist.
5. Remove the top cover plate of ROAMS by removing the three Phillips screws.
6. Remove the front panel by removing the two 1/4" nuts from the chassis and front cover plate.
7. Verify the EPROM (marked U6 on the PCB component side) is version 1.7 or earlier. Version 1.7 is marked with a "V1.7" on the label on the top of the EPROM. If it is already marked as version 2.3 ("V2.3"), skip to step 10 to perform the PCB inspection and modification. If not, proceed to the next step.
8. Carefully remove the version 1.7 EPROM from U6 using an IC puller.
9. Making sure the cutout at the end of the EPROM aligns with the cutout on the socket and PCB, carefully install the version 2.3 EPROM into the socket using the IC insertion tool. If the tool is not available, carefully line up the EPROM pins with the socket and push the EPROM fully into the socket making sure the IC pins do not bend or fold under the EPROM.

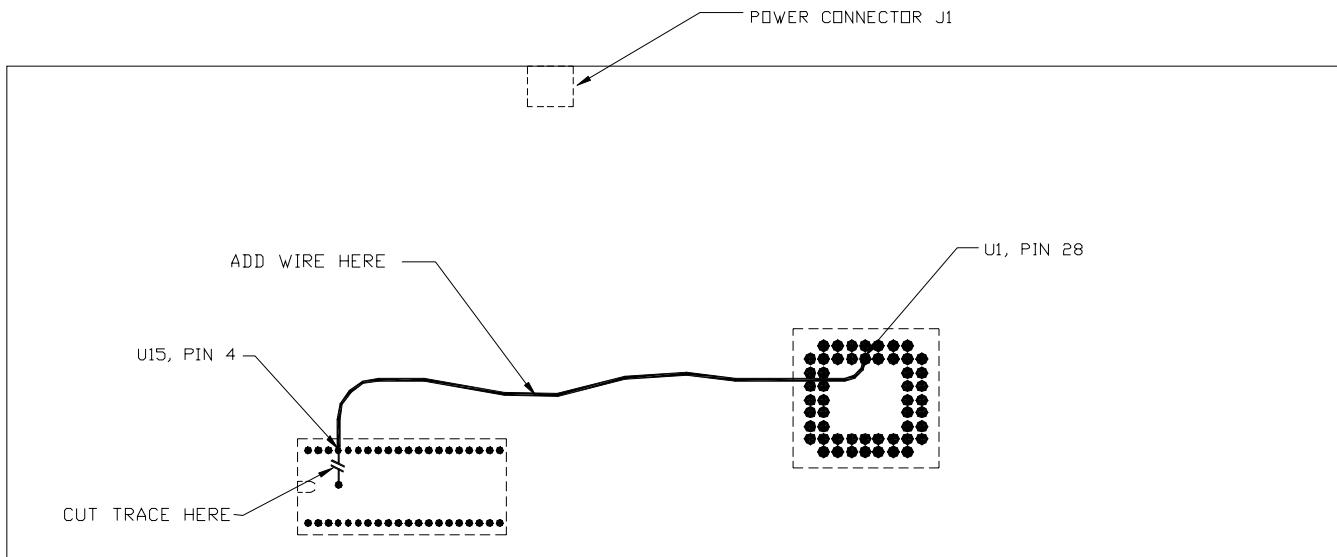
NOTE: This ends the EPROM replacement procedure. The following is the procedure to inspect and if necessary, modify the printed circuit board.

10. Look on the component side of the circuit board for the words "NWS ROAMS". Below those words is a model number and revision of the PCB. If it is marked "MU-103B REV C" or a later REV letter (D, E, etc.), skip to step 17 since the PCB has already been modified. If REV A or REV B, proceed to the next step to add a wire and cut a PCB trace.

11. Remove the circular mounting nut holding on the power connector. Twist the power connector counter-clockwise to remove.
12. Remove connectors (+ and -) from the spade lugs on the battery.
13. Remove the circuit card from the plastic standoffs by pushing in the release tabs and gently pulling on the circuit card vertically (one at a time) then lifting the card from the metal bracket.
14. Using the supplied piece of Teflon wire, cut the wire to the appropriate length then strip back about 1/8" of insulation from each end (see Figure 1).
15. Referring to the PCB diagram (Figure 1) and working on the solder side of the PCB, solder one end of the Teflon wire to U1 pin 28 and the other end to U15 pin 4 taking care to route the wire around the soldered circuit board component pads.
16. Using a small, sharp cutting tool, cut the foil trace between U15, pin 4 and the end of the trace approximately in the middle of the bottom of the U15 socket (see Figure 1).
17. Re-install the ROAMS PCB by reversing the procedures in steps 13, then 12, then 11.
18. Install the front panel to the chassis and front cover plate.
19. Install the top cover and re-install the ROAMS unit in the transmitter rack.
20. Connect the I/O connector to the back of the ROAMS unit.
21. Carefully insert the power plug into the back of the ROAMS unit (twist it clockwise if necessary). There is no switch so power is immediately applied to the unit.
22. After approximately 30 seconds, observe that the Green LED flashes on for one second, then OFF for one second. After that sequence, disregard the LED activity.
23. Using a telephone, call the ROAMS unit and verify that it talks and announces its site number. Hang up if it does. Installation and testing is complete.

NOTE: It is not necessary for this exchange to perform step 23, but it could save a second trip to the site.

24. If it fails to talk, execute a power down cycle by removing the power plug, count to five then re-install the jack. Observe the LED (see step 22) and repeat step 23. Attempt to perform this action three times before declaring a hard failure and ordering another ROAMS unit.
25. Ship the removed EPROM back to Independent Technology.



R0AMS PCB SOLDFR STDF

Figure 1

Attachment B
Effectivity

SRS NWR Transmitter Locations

State	Site ID	Site Name	Site Location	Transmitter Model
AK	CRDA2	Cordova	Cordova	SR416
AK	FBSA2	Fairbanks	Ester Dome	SR416
AK	HORA2	Homer	Diamond Ridge	SR416
AK	JUNA2	Juneau	Juneau	SR416
AK	KODA2	Kodiak	Kodiak	SR416
AK	NOMA2	Nome	Nome	SR416
AK	SARA2	Seward	Seward	SR416
AK	SKAA2	Sitka	Biorka Island	SR416
AK	VLZA2	Valdez	Valdez	SR416
AK	WRNA2	Wrangell	Wrangell	SR416
AK	YAKA2	Yakutat	Yakutat	SR416
AK	HNSA2	Haines	Haines	SR402
AK	KTCA2	Ketchikan	Point Higgins	SR416
AL	ABRA1	Auburn	Auburn	SR416
AL	COLG1	Columbus	Phenix City	SR416
AL	HNGA1	Henagar	Pea Ridge	SR416
AL	JKSA1	Jackson	ToddTown	SR416
AL	MOBA1	Mobile	Mobile	SR416
AL	WIFA1	Winfield	Guin	SR416
AR	YVEA4	Yellville	Rea Valley	SR416
AR	FYTA4	Fayetteville	Winslow	SR416
AR	FRTA4	Fort Smith	Ft. Chaffee	SR416
AR	GRDA4	Gurdon	Gurdon	SR416
AR	JNSA4	Jonesboro	Bono	SR416
AR	LTRA4	Little Rock	Shinall Mtn.	SR416
AR	MNTA4	Mountain View	Fox	SR416
AR	STRA4	Star City	Star City	SR416
AZ	TCSA3	Tucson	Mt. Lemmon	SR402
AZ	PHNA3	Phoenix	South Mtn.	SR416
CA	BKFC1	Bakersfield	Shirley Peak	SR402

State	Site ID	Site Name	Site Location	Transmitter Model
CA	MTAC1	Big Rock Ridge	N. San Francisco Bay	SR402
CA	RDDC1	Redding	South Fork Mtn.	SR402
CA	YUMC1	Yuma	Black Mtn.	SR402
CA	MPRC1	Eureka	Mt. Pierce	SR416
CA	FESC1	Fresno	Bear Mtn.	SR416
CA	PNTC1	Point Arena	Cold Springs Peak	SR416
CA	SATC1	Sacramento	Jackson Butte	SR416
CA	MTWC1	San Diego	Mt. Woodson	SR416
CA	MTUC1	San Francisco	Mt. Pise	SR416
CO	CORC2	Colorado Springs	Austin Bluffs	SR402
CO	ALMC2	Alamosa	Pool Table Mtn.	SR416
CT	CRNC3	Cornwall	Mohawk Mtn.	SR416
CT	HRTC3	Hartford	Soapstone Mtn.	SR416
CT	MRDC3	Meriden	West Peak	SR416
CT	NLNC3	New London	Pie Hill	SR416
DE	LWED1	Lewes	Green Hill	SR416
DE	SLSM2	Salisbury	Ralphs	SR416
FL	FTP1	Fort Pierce	Fort Pierce	SR402
FL	MECF1	Tea Table Key	Tea Table Key	SR402
FL	LVAF1	Live Oak	Mt. Pine	SR416
FL	FMYF1	Fort Myers	Florida Division of Emergency Management	SR416
FL	GNVF1	Gainesville	Northwood	SR416
FL	JKSF1	Jacksonville	Regency Square	SR416
FL	MIMF1	Miami	University of Miami	SR416
FL	ORLF1	Orlando	Orlando	SR416
FL	PNCF1	Panama City	Courtney Point	SR416
FL	PNSF1	Pensacola	Milton	SR416
FL	WPBF1	West Palm Beach	Mangonia Park	SR416
GA	SNDG1	Sandersville	Sandersville	SR416
GA	ATHG1	Athens	Neese	SR416
GA	SMNG1	Atlanta	Stone Mtn.	SR416
GA	AUUG1	Augusta	Wrens	SR416
GA	CHTG1	Chatsworth	Cohutta Mtn.	SR416

State	Site ID	Site Name	Site Location	Transmitter Model
GA	MCOG1	Macon	GA Forrestry Comm.	SR416
GA	PLHG1	Pelham	Pelham	SR416
GA	SVNG1	Savannah	Savannah	SR416
GA	WYCG1	Waycross	Hasty	SR416
GA	WNSG1	Waynesboro	Shell Bluff	SR416
HI	KLCH1	Kulani Cone	Kulani Cone	SR416
HI	MKOH1	Kauai	Kokee	SR416
HI	MTHH1	Maui	Mt. Haleakala	SR416
HI	MTKH1	Oahu	Mt. Kaala	SR416
ID	BOII1	Boise	Doe Point	SR402
ID	PCTI1	Pocatello	Atomic City	SR402
ID	TFLI1	Twin Falls	Jerome	SR402
ID	LWSI1	Lewiston	Winchester Grade	SR416
IL	IL.122	DeKalb	!	SR402
IL	RRDI2	Rockford	Latham Park	SR416
IL	CHMI2	Champaign	Champaign	SR416
IL	MOLI2	Quad Cities	Rock Island	SR416
IN	IWX	North Webster	State Rd. 13 (State Hwy.)	SR402
IN	BOMI3	Bloomington	Indiana University	SR416
IN	INPI3	Indianapolis	Indianapolis	SR416
IN	FWYI3	Fort Wayne	Fort Wayne	SR416
IN	LFTI3	Monticello/Lafayette	Yeoman	SR416
IN	TRHI3	Putnamville	Putnamville	SR416
IN	STBI3	South Bend	Mishawaka	SR416
KS	CNTK1	Chanute	Erie	SR416
KS	CNCK1	Concordia	Concordia	SR416
KS	DGCK1	Dodge City	Ensign	SR416
KS	ESWK1	Ellsworth	Ellsworth	SR416
KS	CLBK1	Goodland	Colby	SR416
KS	TPKK1	Topeka	Maple Hill	SR416
KS	WCHK1	Wichita	Wichita	SR416
LA	AXNL1	Alexandria	Jena	SR416
LA	BROL1	Baton Rouge	Baker	SR416
LA	BRAL1	Buras	Buras	SR416

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State	Site ID	Site Name	Site Location	Transmitter Model
LA	LAFL1	Lafayette	Youngsville	SR416
LA	MNRL1	Monroe	Monroe	SR416
LA	MGCL1	Morgan City	Morgan City	SR416
LA	NWOL1	New Orleans	New Orleans	SR416
LA	SHRL1	Shreveport	Lake View	SR416
LA	LAKL1	Westlake	Sulphur	SR416
MA	BSTM3	Boston	Great Blue Hill	SR416
MA	HANM3	Bourne/Hyannis	Camp Edwards	SR416
MA	WRCM3	Worcester	Paxton	SR416
MD	BALM2	Baltimore	Pikesville	SR416
MD	HGTM2	Hagerstown	Clear Spring	SR416
ME	ELSM1	Ellsworth	Dollard	SR416
ME	PRTM1	Portland / Falmouth	Goat Mtn.	SR416
MI	HRNM4	Alpena	Herron	SR416
MI	SFDM4	Detroit	Southfield	SR416
MI	CLOM4	Flint	Clio	SR416
MI	HGTM4	Houghton	Painesdale	SR416
MI	NGNM4	Marquette	Negaunee	SR416
MI	DFTM4	Sault Ste Marie	Daftner	SR416
MN	LASW3	LaCrosse	LaCrescent	SR416
MN	MINM5	Minneapolis/St. Paul	Minneapolis	SR416
MO	HERM7	Hermitage	Lake PomDeTerre	SR402
MO	CMDM7	Camdenton	Osage Beach	SR416
MO	COLM7	Columbia	Fulton	SR416
MO	HANM7	Hannibal	Hannibal	SR416
MO	CARM7	Joplin	Avilla, Carthage	SR416
MO	KSCM7	Kansas City	Federal Building	SR416
MO	STJM7	Saint Joseph	Saint Joseph	SR416
MO	SIKM7	Sikeston	Idalia	SR416
MO	SRNM7	Springfield	Fordland	SR416
MO	STLM7	St. Louis	Shrewsbury	SR416
MS	CMBM6	Columbia	Columbia	SR402
MS	ACRM6	Ackerman	Ackerman	SR416
MS	BONM6	Booneville	Dumas	SR416

State	Site ID	Site Name	Site Location	Transmitter Model
MS	BUDM6	Bude	Smithdale	SR416
MS	GLPM6	Gulfport	Gilfport	SR416
MS	INVM6	Inverness	Inverness	SR416
MS	OXRM6	Oxford	Taylor	SR416
MT	BUTM8	Butte	XI Heights	SR402
MT	HELM8	Helena	Hogback Mtn.	SR402
MT	KALM8	Kalispell	Blacktail Mtn.	SR402
MT	MISM8	Missoula	Point Six Mtn.	SR402
MT	EMRM8	Billings	Emerald Hills	SR416
MT	FPRM8	Glasgow	Glasgow Airport (Ft. Peck)	SR416
MT	GREM8	Great Falls	Bootlegger Hill	SR416
MT	HREM8	Havre	Squaw Butte	SR416
MT	MLSM8	Miles City	Gov't. Hill	SR416
NC	MGVN7	Margaretsville	Margaretsville	SR402
NC	WNSN7	Winston-Salem	Sauratown Mtn.	SR402
NC	ASVN7	Asheville	Mt. Pisgah	SR416
NC	CPHN7	Cape Hatteras	Middletown	SR416
NC	CHRN7	Charlotte	Spencer Mtn.	SR416
NC	FYTN7	Fayetteville	Ft. Bragg	SR416
NC	NEWN7	New Bern	Glenburnie Garden	SR416
NC	RLEN7	Raleigh-Durham	Durham	SR416
NC	ROCN7	Rocky Mount	Tarboro	SR416
NC	WINN7	Wilmington	Winnabow	SR416
ND	BSMN8	Bismarck	St. Anthony	SR416
ND	DKNN8	Dickinson	Daglum	SR416
ND	JMTN8	Jamestown	Cable Serv. Tower	SR416
ND	MILN8	Minot	South Prarie	SR416
ND	PRBN8	Petersburg	Dahlen	SR416
NE	GDIN1	Grand Island	Giltner	SR416
NE	NRFN1	Norfolk	Carroll	SR416
NE	OMMN1	Omaha	Omaha	SR416
NH	CCRN3	Concord	Pembroke	SR416
NJ	ATCN4	Atlantic City	Atlantic City	SR416
NM	ROWN5	Roswell	Roswell	SR402

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State	Site ID	Site Name	Site Location	Transmitter Model
NM	CADN5	Carlsbad	Carlsbad	SR416
NM	CVSN5	Clovis	Clovis	SR416
NM	DSMN5	Des Moines	Sierra Grande	SR416
NM	FRGN5	Farmington	Farmington	SR416
NM	HOBN5	Hobbs	Maljamar	SR416
NM	RDON5	Ruidoso	Sierra Blanca	SR416
NM	SNFN5	Santa Fe	Tesuque Peak	SR416
NV	WTPN2	Elko	Adobe Peak	SR402
NV	CAVN2	Ely	Cave Mtn.	SR402
NV	LASN2	Las Vegas	Boulder City	SR402
NV	RNNN2	Reno	Slide Mtn.	SR402
NV	WNNN2	Winnemucca	Winnemucca Mtn.	SR402
NY	WTNN6	Walton	Houck Mtn.	SR402
NY	ALNN6	Albany	New Scotland	SR416
NY	BINN6	Binghamton	Binghamton	SR416
NY	ELRN6	Elmira	Hawley Hill	SR416
NY	HLDN6	Highland	Illinois Mtn.	SR416
NY	NWYN6	New York City	New York City	SR416
NY	RINN6	Riverhead	Riverhead	SR416
NY	SYRN6	Syracuse	Makyes Rd.	SR416
OH	ARNO1	Akron	!	SR416
OH	BDPO1	Bridgeport	Bridgeport	SR416
OH	CLDO1	Caldwell	High Hill	SR416
OH	CLEO1	Cleveland	Chesterland	SR416
OH	DYTO1	Dayton	Miamisburg	SR416
OH	LMAO1	Lima	Wapakoneta	SR416
OH	SNDO1	Sandusky	Castaqlia	SR416
OK	WOWO2	Woodward	Woodward	SR416
OK	CINO2	Clinton	Arapaho	SR416
OK	EIDO2	Enid	Drummond	SR416
OK	LONO2	Lawton	Lawton	SR416
OK	MCLO2	McAlester	McAlester	SR416
OK	OKLO2	Oklahoma City	Oklahoma City	SR416
OK	TULO2	Tulsa	Tulsa	SR416

State	Site ID	Site Name	Site Location	Transmitter Model
OR	EGNO3	Eugene	Blandon Heights	SR402
OR	KLFO3	Klamath Falls	Hogback Mtn.	SR402
OR	ROSO3	Roseburg	Dodson Mtn.	SR402
OR	SEMO3	Salem	Prospect Hill	SR402
OR	CBYO3	Coos Bay	Noah Butte	SR416
OR	MEDO3	Medford	Blackwell Hill	SR416
OR	PDLO3	Pendleton	Spout Springs	SR416
OR	PTLO3	Portland	Goat Mtn.	SR416
PA	ANTP1	Allentown	Allentown	SR416
PA	CLEP1	Clearfield	Clearfield	SR416
PA	ERIP1	Erie	Erie	SR416
PA	HRRP1	Harrisburg	Blue Mtn.	SR416
PA	JNSP1	Johnstown	Laurel Hill	SR416
PA	TWDP1	Towanda	Mt. Pisgah	SR416
PA	WLKP1	Wilkes-Barre	Penobscot Knob	SR416
PA	WLMP1	Williamsport	Montoursvil	SR416
PR	MRIP4	Maricao	Monte Del Estado	SR416
PR	SNJP4	San Juan	Cerro La Mesa	SR416
RI	PRVR1	Providence	Johnston	SR416
SC	SMTS1	Sumter	Sumter	SR402
SD	ABRS2	Aberdeen	Aberdeen	SR416
SD	HROS2	Huron	Wessington	SR416
SD	PERS2	Pierre	Presho Tower	SR416
SD	RPCS2	Rapid City	Cabot Hill	SR416
SD	ROWS2	Sioux Falls	Rowena	SR416
TN	BSTT1	Bristol	Holston Mtn.	SR416
TN	CTNT1	Chattanooga	Signal Mtn.	SR416
TN	COKT1	Cookeville	Monterey	SR416
TN	JKST1	Jackson	Jackson	SR416
TN	KXVT1	Knoxville	Sharps Ridge	SR416
TN	MMPT1	Memphis	Memphis	SR416
TN	SLBT1	Shelbyville	Beech Grove	SR416
TN	WVRT1	Waverly	McEwen	SR416
TX	PCCT2	Port O'Connor	Port O'Connor	SR402

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State	Site ID	Site Name	Site Location	Transmitter Model
TX	PHRT2	Brownsville	Brownsville	SR416
TX	RTVT2	La Grange	Rutersville	SR416
TX	AILT2	Abilene	Cedar Gap Mtn.	SR416
TX	AMRT2	Amarillo	Amarillo	SR416
TX	AUIT2	Austin	Austin	SR416
TX	BMTT2	Beaumont	Beaumont	SR416
TX	BGRT2	Big Spring	Big Spring	SR416
TX	BYNT2	Bryan	College Station	SR416
TX	CCHT2	Corpus Christi	Corpus Christi	SR416
TX	FRTT2	Crowley / Fort Worth	Burleson	SR416
TX	TX.21	Cumby	Greenville	SR416
TX	DAST2	Dallas	Dallas	SR416
TX	DRIT2	Del Rio	Amistad Village	SR416
TX	GLVT2	Galveston	Galveston	SR416
TX	GMRT2	Gilmer	Longview	SR416
TX	HOUT2	Houston	Houston	SR416
TX	LRDT2	Laredo	Laredo	SR416
TX	LBBT2	Lubbock	New Deal	SR416
TX	LKNT2	Lufkin	Lufkin	SR416
TX	MDAT2	Midland/Odessa	Odessa	SR416
TX	PAIT2	Paris	Paris	SR416
TX	PHAT2	Pharr	Pharr	SR416
TX	SNAT2	San Angelo	San Angelo	SR416
TX	SATT2	San Antonio	San Antonio	SR416
TX	SHRT2	Sherman	Sherman/Denison	SR416
TX	TX.44	Stephenville	Dublin	SR416
TX	TEXA4	Texarkana	Texarkana	SR416
TX	TYLT2	Tyler	Tyler	SR416
TX	VTRT2	Victoria	Victoria	SR416
TX	WAOT2	Waco	Moody	SR416
TX	WCFT2	Wichita Falls	Wichita Falls	SR416
UT	LGAU1	Logan	Mt. Logan	SR402
UT	CEDU1	Milford/Cedar City	Frisco Peak	SR402
UT	NAVU1	Lake Powell	Navajo Mtn.	SR416

State	Site ID	Site Name	Site Location	Transmitter Model
UT	SLKU1	Salt Lake City	Bacchus	SR416
UT	VRLU1	Vernal	Asphalt Ridge	SR416
VA	HTHV2	Heathsville	Heathsville	SR416
VA	LNCV2	Lynchburg	Madison Heights	SR416
VA	NRFV2	Norfolk	Driver	SR416
VA	RCHV2	Richmond	Richmond	SR416
VA	RNKV2	Roanoke	Poor Mtn.	SR416
VT	BRLV1	Burlington	Mt. Mansfield	SR416
VT	WNDV1	Windsor	Mt. Ascutney	SR416
VT	MRLV1	Marlboro	Ames Hill	SR416
WA	ARTW1	Astoria	Naselle Ridge	SR402
WA	OLYW1	Olympia	Boistfort Peak	SR402
WA	SETW1	Seattle	Couger Mtn.	SR402
WA	SOAW1	Spokane	Spokane Mtn.	SR402
WA	WNTW1	Wenatchee	Eagle Rock	SR402
WA	NEBW1	Neah Bay	Bohokus Peak	SR416
WA	YKMW1	Yakima	Ahtanum Ridge	SR416
WI	DLFW3	Milwaukee	Delafield	SR402
WI	KLRW3	Dubuque	Kieler	SR416
WI	GRBW3	Green Bay	Scrays Hill	SR416
WI	MDSW3	Madison	Middleton Junction	SR416
WI	MEOW3	Menomonie	Wheeler	SR416
WI	WAMW3	Wausau	Marathon	SR416
WV	BECW2	Beckley	Flat Top	SR416
WV	CRLW2	Charleston	Shinnston	SR416
WV	CRKW2	Clarksburg	Shinnston	SR416
WV	GLBW2	Gilbert	Mingo Mtn.	SR416
WV	HTOW2	Hinton	Keeney Mtn.	SR416
WV	MFDW2	Moorefield	Branch Mtn.	SR416
WV	SNCW2	Spencer	Spencer	SR416
WV	STTW2	Sutton	Flatwoods	SR416
WY	CSRW4	Casper	Casper Mtn.	SR416
WY	LNDW4	Lander	Lander	SR416
WY	SRDW4	Sheridan	Banner Peak	SR416

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State	Site ID	Site Name	Site Location	Transmitter Model
WY		Cheyenne	Pole Mtn.	SR416
NE		Holdrege	Atlanta	SR416
NE		Lincoln	Lincoln	SR416
NE		Scottsbluff	Angora	SR416
NE		Bassett	Bassett	SR416
NE		Merriman	Merriman	SR416
NE		Grand Island	Giltner	SR416
NE		Omaha	Omaha	SR416
NE		Norfolk	Carroll	SR416
NE		North Platte	Sutherland	SR416
IA		Cedar Rapids	Cedar Rapids	SR416
IA		Des Moines	KCCI	SR416
IA		Sioux City	Lawton	SR416
IA		Waterloo	Bremer	SR416
IN		Louisville	Floyds Knob	SR416
MI		Grand Rapids	Kentwood	SR416
MI		Onondaga	Rossman Road	SR416
MI		Traverse City	Traverse City	SR416
MN		Duluth	Arnold Site	SR416
MN		International Falls	Little Fork	SR416
MN		Mankato	Janesville	SR416
MN		Rochester	Viola	SR416
MN		St. Cloud	St. Cloud	SR402
MN		Thief River Falls	Thief River Falls	SR416
MN		Willmar	New London	SR416
ND		Fargo	Amenia	SR416
ND		Williston	Williston	SR416

Energy - Onix NWR Transmitter Locations

State	Site ID	Site Name	Site Location	Transmitter Model
AK	SDTA2	Soldotna	Soldotna	WRST-1000
AL	BRMA1	Birmingham	WBIQ TV	WRT-1000
AL	DMPA1	Demopolis	Jefferson	WRT-1000
AL	DZRA1	Dozier	WDIQ TV	WRT-1000
AL	FRNA1	Florence	Crooked Oak	WRT-1000
AL	HNTA1	Huntsville	WAAV TV	WRT-1000
AL	LSVA1	Lousville	Texasville	WRT-1000
AL	MTGA1	Montgomery	WAIQ TV	WRT-1000
AL	TSCA1	Tuscaloosa	WVUA FM	WRT-1000
AL	ANIA1	Anniston	Mt. Cheaha	WRT-1000
AL	CUMA1	Cullman	Cullman	WRT-100
FL	SLMF1	Salem	Salem	WRT-1000
KS	LNOK1	Lenora	Lenora	WRT-100
MI	WTSM4	Gaylord	Waters	WRT-100
MN	PRDM5	Park Rapids	Park Rapids	WRT-100
MO	BUBM7	Crawford	Crawford County	WRT-1000
MO	SRVM7	Summersville	Summersville	WRT-1000
NC	BDNN7	Badin	Badin	WRT-1000
ND	WBTN8	Webster	Webster	WRT-1000
ND	GDFN8	Grand Forks	Grand Forks	WRT-1000
PA	PAKP1	Parker	Parker	WRT-1000
TN	LWRT1	Lawrenceburg	Flanigan Hill	WRT-1000
TX	INRT2	Kerrville	Ingram	WRT-1000
TX	FOHT2	Llano	Fowler Hill	WRT-1000
WI	ASLW3	Ashland	Ashland	WRT-1000
WI	AMSW3	Coloma	Greenbay	WRT-1000
WI	CANW3	Crandon	Crandon	WRT-1000
WI	FOLW3	Fond du Lac	Fond du Lac	WRT-1000
WI	PARW3	Janesville	Milton - Rock Count	WRT-1000
WI	PFLW3	Park Falls	Park Falls	WRT-1000
WI	RANW3	Racine	Racine	WRT-1000

State	Site ID	Site Name	Site Location	Transmitter Model
WI	SBGW3	Sheboygan	Sheboygan	WRT-1000
WI	SONW3	Spooner	Webster	WRT-1000
WI	WTHW3	Withee	Withee	WRT-1000
WI	BONW3	Prairie du Chien	Bloomington	WRT-1000
WI	OFVW3	Richland Center	Ash Ridge	WRT-1000
WI	SISW3	Sister Bay	Sister Bay	WRT-1000

Attachment C EMRS Report Sample

A26 Detail Form - ESCM2, SILVER SPRING, MD :: EMRS ANALYST - Microsoft Internet Explorer

New A26 Commit A26 Place on Hold Copy A26 Delete A26 Detail Report Preference Document Summary Help

GENERAL INFORMATION

NEW RECORD WFO* AKQ Document No.* AKQ30214001

1. Open Date Open Time 2. Op Initials 3. Response Priority 4. Close Date Close Time

NWR ROAMS Firmware Upgrade and Circuit Board Modification

5. Maintenance Description 443 characters left NWR/CRS

6. Station ID* RCHV2 7. Equipment Code B345 8. Serial Number 467 9. TM M 10. AT M 11. How Mal 999

Alert: Time Remaining:
(For Block 12 use only)

14. WORKLOAD INFORMATION

a. Routine b. Non-Routine c. Travel d. Misc e. Overtime

15. Maintenance Comments 582 characters left

Inspected and upgraded the ROAMS EPROM firmware from ver. 1.7 to ver 2.3 and modified the printed circuit board to allow remote setting of the voice integrated circuit.

16. Tech Initials DHJ

17. SPECIAL PURPOSE REPORTING INFORMATION

a. Mod No. 80 b. Mod Act/Deact Date 02/13/2003 c. Block C d. Trouble Ticket No. e. Block E

Commit A26 Place on Hold Copy A26 New A26 Cancel

Done Internet